MARCH 1986
PRICE $1.00

The I/O Connector

The Newsletter of the San Diego Atari Computer Enthusiasts

MANNESMANN TALLY PIXY 3
3 COLOR PEN PLOTTER $200.00

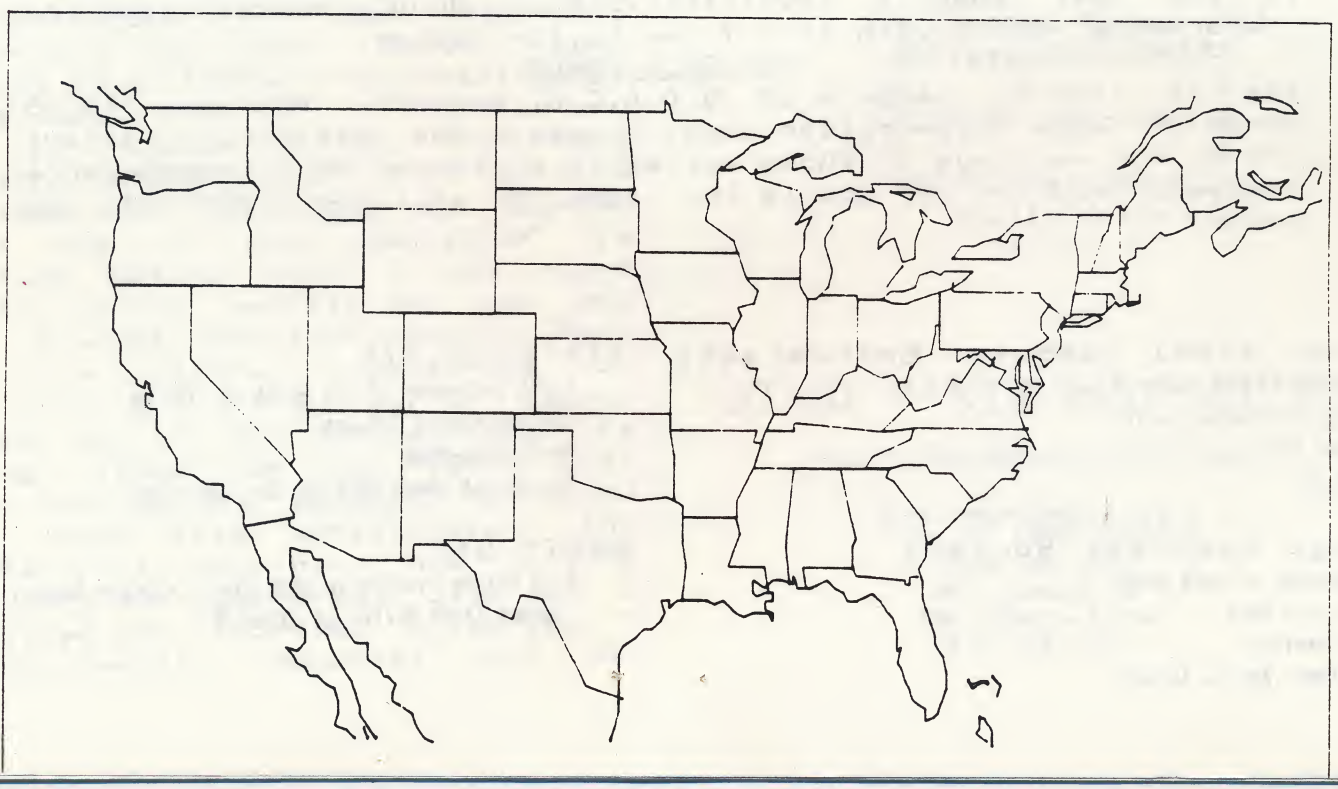
I have been waiting for a long time for a reasonably priced pen plotter. Jade Computer has been running a sale on the aboved named plotter and what a deal it is. This plotter is loaded with features. I bought one and plugged it right into the Centronics printer port on my ATR 8000 (The 850 Atari Interface would work just as well.) and everything worked perfect. The example map of the U.S.A. was plotted on the Pixy 3 using the old APX Mapware program. Here are the plot commands available on the Pixy 3.

Line Type, Line Scale, Draw, Move, RElative Draw, Relative Move, Circle, Relative Circle, Curve, RElative Curve, Alphabet Scale, Font, Alphabet Rotate, Alphabet Reset, Axis, Grid, Home, Print, Greek, Scientific, Mark, Speed, Terminate, Factor, New Pen, Status. If that isn't a mouth full, this plotter has three diagnostic programs, an error light, and pen controls on the front of the plotter. The plotter plots in .1 millimeter steps on 8 x 11.5 inch paper. It will also plot text in varying sizes.

Issuing commands to the plotter is just like printing on a printer. For example, LPRINT "M 100 200", will tell the printer to move to point X=10 centimeters and Y=20 centimeters. LPRINT "J2" will cause the plotter to pick up pen number 2. Max plotting speed is 7.8 inches per second.

In summary, this plotter is easy to interface and use. It seems to be well made. For the price, this plotter is hard to beat.

Ron Miller, SDACE



SAN DIEGO ATARI COMPUTER ENTHUSIASTS

is an independent, non-profit organization and user group with no connection to the ATARI Corporation. Membership fees are currently $15.00 annually, from January 1 thru December 31 of the current calendar year. Membership includes free acess to the computer program library, subscription to the "I/O Connector", and classes when held. Permission to reprint articles in any non-commercial form is permitted with specific authorization, as long as proper credit is given.

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SUBMISSIONS TO THE NEWSLETTER

are most welcome, and due by the 25th of the month for publication in the next month's newsletter. Mail double-spaced text or (returnable) disks with text files to the Editor.

BUY/SELL/TRADE

ads are free to members of S.D.A.C.E. members. Ads must be 25 words or less, typewritten copy, please. The Editor will accept ads at the meetings or those mailed in to the above correspondence address. Deadline for ads is the same for articles - 25th of the month.

San Diego ATARI Computer Enthusiasts
Third Monday of the month at 6:30 pm
North Park Recreation Center
4044 Idaho Street
Social Room

San Diego Computer Society
Third Saturday of each month
12 noon: swap meet
1:30 pm: meeting
Mesa College, Apollo Theatre

ATR 8000 SIG
Forth Wednesday of the month at 7:00 pm
Santana Rancho Estates
Recreation Room
Please use guest parking, See map below

BASIC SIG
Each Friday evening at 1830 Ebers in Ocean Beach
Contact Frank Miller at 223-6378

March is just about here and all on the ST front is moving along slowly but surely. By the time of the North Park meeting I hope to be able to announce a date for our first S.D.A.C.E. SIG meeting.

My appologies go out to those that had to stand for the whole meeting. More seating should be available so that this should not occur again.

A change in the format of the North Park meeting is being discussed at this time. Once anything firms up you'll be the first to hear about it.

8-bit members wake up! We need you help in the content of our meetings. Those people who were the first to buy the 8-bit machines and those who actively participated in the running of the club are the very same people who are now getting the new Atari 520ST. They are now pointing there efforts towards the new love of there life. Therefore the content of the meetings is shifting more and more towards the ST. Please, if you have anything that you'd like to share with the group then call me so that I can put you on the agenda.

This month we will have a demonstration of the MIDI-MATE interface for the 8-bit line. Thanks go to Warner Engineering for this demo.

For those of you that have 800XL's, there's still alot of life in them yet. The 256K ram upgrade that was in the newsletter is working better than I had hoped (which is not exactly the same one as I demonstrated last month). More and more software is appearing for use with the extra ram. Of course almost all of the software that is being written for the 130XE will also work on the '256XL'. For those that have this modification the library will soon have new ram-disk handlers for Sparta-Dos 2.3b and a modified Dos 2.5 that gives you 2 single density ram-disks with 707 sectors each.

I wish to thanks those persons that have offered thier time and efforts to better S.D.A.C.E., Mike Smith as the new co-editor of out newsletter, Rick Hall as our newsletter advertising salesperson, and Tom Messiner as the representitive to the North Park recreation center.

Thats about all the news that I can think of at the moment, so we'll see you at the next meeting.

COMPUTER FAIRE

The West Coast Computer Faire will be held at the Moscone Center in San Francisco this year. Mark your calendars for April 3rd to the 6th. Sunday the 6th will be of special interest to Atarians.

The San Leandro Computer Club will be hosting a panel discussion from 11 am to 12:30 pm. The panel will be composed of David Small, Bill Wilkinson, Chris Crawford, Jim Capparell, Sam and Leonard Tramiel. Following, at 1 pm, Lucas Films will present a special show.

Anyone interested, please contact Dick Hiatt at the next meeting for more information.

S.D.A.C.E. BBS

For a good time, call

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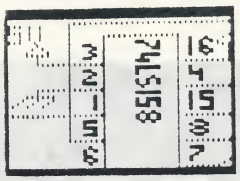
24 hours

The February SDACE board meeting began promptly at President Rick DeHaven's house at 7:00. Present at the meeting were Rick Dehaven, Mark Booth, Bruce Lawson, Darlah Hudson, Dick Hiatt, David Delgadillo, Jim Tragasier, and Jim Hartman. The meeting began by going over the mailing list from which we send out free copies of the I/O connector to vendors by adding or deleting names from it. It was brought up that a number of advertisers had not paid for their ad yet, so Rick felt it was time to have an advertisement manager to keep on top of this. A plea for a volunteer for this position will be made at the regular meeting. A motion carried to adjust advertisment rates in the I/O connector to $10.00 per 1/4 page or $5.00 for business card size. After looking over several nationwide ACE newsletters and considering a possible printing savings, there was a discussion on changing the format and size of the I/O connector. David will look into this by first putting together a graphics display to see how it would come out on the new format. We have been aware that the SDACE regular meeting has begun to outgrow its meeting place. Mark and Rick will investigate and evaluate possible new meeting places or ways in which the problem could be dealt with. The next meeting will include a demonstration of the Commodore Amiga and an upgraded 800XL computer. Buck Bragunier, who was not present, was telephoned to confirm that he would put together a talk about the recent ACENET meeting in L.A. for presentation at the next regular meeting. The next board meeting will be held at Dick Hiatt's home which will be on March 10th at 7:00. Dick brought up a short discussion of moving the board meeting to after the regular meeting on the 4th Monday of the month rather than the second monday of the month. It was decided that this would be decided when all board members were present. Guidelines were briefly discussed on establishing a 520ST disk library. This concluded the regular monthly board meeting. At the regular monthly membership meeting at the North Park Recreation Center on February 17th, President Rick DeHaven began by putting forth a plea for an ad manager and someone to represent us at the Rec Center meetings, at which time we had two persons volunteer for these positions. A motion was raised and passed to purchase an 850 interface and monitor for $175.00 for the club BBS. Several announcements were made on a variety of subjects including new software and hardware and local retailers. Bill Sanders then gave a talk on his new book on the Atari 520ST for Compute! publicatons. An ST SIG date was tentatively set for either the first or 3rd Thursday of the month since that is the only days available at the Rec center. Buck Bragunier stood and gave his talk on the ACENET meeting and offered a few editorials about it. A more complete summation is elsewhere here in the I/O Connector. Rick Demonstrated the ramdisk functions via MicroPainter files on a "fat" (ram-upgraded) 800XL. Next, we had two representatives give a talk on their new product for the ST line called ST Tool Box and a Gem Paint product. They seem like very complete products. Next and lastly, Larry Carlson, vice president of the South Bay Commodore SIG brought his Amiga Computer and proceeded to show us what we're missing by not spending $900.00 more than an ST. We all must admit, it was very impressive. Whether it's worth $2000 or not is another story. For the most part, this concluded the February meeting of the San Diego Atari Computer Enthusiasts. See you next month!



HARDWARE

THE ATARI 800 PLUS 256K MEMORY MODIFICATION INSTALLATION MANUAL for the ATARI 800 HOME COMPUTER

Original documentation by
David G. Byrd
1513 Commanche Drive
Las Vegas, NV 89109

SYNFILE+ and SYNCALC compatibily provided by
Walt Hoffman.

Rewritten with SYNFILE+ and SYNCALC compatibility by
Robert Bobbio - LAACE

Full credit for the installation of 5v only chips in the 16K board goes to Claus Buchholz and the "MACE Users Group."

This article will describe how to modify, test and use a 256K memory board in the middle slot of the ATARI 800. This will cost you under $50, a few hours of your time and will give you a total of 288K of RAM. The parts required are:

1 - 74LS02
1 - 74LS175
1 - 74LS86
2 - 74LS158
1 - 74LS112
1 - 74LS138
8 - 41256

You may wish to pick up a "spare" memory board as this will allow you to return to a stock 800 if you should desire.

GETTING STARTED

Remove the middle memory board (or use the spare) and look at the memory board.
The eight chips along the top are the RAM chips. The other four chips are the addressing circuitry. The edge pin connectors at the bottom are labeled as in Figure 2.
The first step is to eliminate the 12v and -5v sources on the board and to move the 5v source to where the 12v used to be. As shown in Figure 3, cut the trace going from pin "X" of the board's edge connector to the capacitor C521. Also cut the trace going from edge pin "Y" to C523. Cut the traces cleanly and completely. Be careful not to slip and damage

adjacent traces.
Now remove capacitors C521 and C523. The trace coming from pin "W" carries 5v. Using a short piece of wire, make a solder bridge between this trace and the old 12v and -5v traces, at the point where C253 and C521 used to be (see Figure 2). Next, remove the eight capacitors C503, C505, C507, C509, C511, C513, C515, and C517, which are usually in a row along the top of the board.
We now have 5v going to pins 1, 8 and 9 of the RAM sockets. Remove the eight 16K RAM chips and insert the new 256K RAMS in their place, properly orienting their notched ends. With an ohmmeter, make sure there is NO connection between edge pin "Y" and pin "8" of the chips, nor should there be any connection between any two of the edge pins "W", "X", and "Y".
If all has gone well the board should function like a 16K memory board, since the addressing circuitry has not been altered.
Put the modified memory board in the middle memory slot of your 800, and check to see if it functions normally. The blue screen should appear quickly. If not, recheck all modifications made so far.
Now take the 5v supply off pins 1 and 9 of the RAM chips. To do this, cut the two rightmost wide traces on the chip side of the board (see Figure 4).
Pick up a new 74LS158 chip, which is the same as the chips Z503 and Z504 on the memory board. With needlenose pliers, carefully bend up all pins except 1, 8, 15, and 16 (see Figure 5). Remove chip Z503, place the new chip on top so that the four pins listed above touch the same four pins on the lower chip. Carefully, solder each of the four pairs together, being careful not to get too much solder on the end of each pin. Now insert the pair in socket Z503.
The second new 74LS158 chip is to be mounted in the same fashion on top of Z504 except that pin 1 is to also be elevated and not soldered. Now insert this pair in socket Z504.
Next we will prepare the additional chips for mounting. These chips will be mounted "Dead Bug" style, so it is a good idea to put a stick-on label on the underside of each chip indicating its type and the location of pin 1.
Install the four new chips in the vacant area below the memory chips. I used "Super Glue" to attach them. Make sure you get them in the right place the first time.
Now wire the new chips per the diagram in figure 6. Connect 5v and ground pins first to each dead-bug chip. Convenient connection points for 5v and ground are the left and right ends of each capacitor located directly below each RAM chip. Connect each chip individually with short wires.
Connect a temporary jumper from pin V to W.

LETS CHECK OUR PROGRESS.
Return the memory board to the middle slot for testing as a 16K board. If the blue screen doesn't come up quickly, turn

it off immediately and check your work.
If it checks OK, remove it and remove the temporary jumper connecting pins V and W, and cut the tracks connecting pins M to N, P to R, and S to T.
The 256K board is complete so put it aside for now.

STANDARD MEMORY BOARD MOD.
Remove the two remaining 16K memory boards from the computer and remove them from their cases. On the reverse side of the board, find the tracks connecting N to M, P to R, and S to T. Cut these tracks on both 16K boards.
If you wish, you may reinstall these boards in their cases.

PERSONALITY BOARD (ROM) MOD
Remove the ROM board, and take it out of the case. Find Z401 and prepare to mount a new 74L3138 on top, in a similar fashion as that shown in Fig. 5. This time however, leave pins 1, 2, 3, 4, 8, and 16 pointing down, and solder them to the same numbered pins on the bottom chip(Z401). Next you must criss-cross pins 5 and 6 of the upper chip so (UPPER)pin 6 connects with (LOWER)pin 5 and (UPPER)pin 5 connects with (LOWER)pin 6. Use some heat-shrink tubing or electrical tape on one of the upper pins to innsulate it from touching the other. Finaly, connect a jumper from (UPPER)pin 7 to pin 20 (the only unused pin) of the card edge. Do not allow solder to flow down the card edge pin.
Reinstall the ROM board in its case.

NOW THE BACKPLANE JUMPERS.
Now it will be necessary to get to the 800 backplane. This requires the removal of the case. First remove all cables from the computer.
Turn the 800 over, with the game-ports facing you, remove the five recessed phillips screws holding the bottom cover. It may now be removed by lifting at the rear and then sliding it forward to clear the game-port connectors. This will expose the bottom RF shield.
Remove the nine phillips screws holding the bottom RF shield and mother board in the RF cage. Remove the phillips screws on the sides of the RF cage. Gently lift the front edge of the mother board and power supply boards and disconnect the keyboard ribbon cable, the power supply cable (note its orientation), and speaker cable. Separate the power supply board and mother board. The mother board and lower RF shield may now be lifted up and out of the RF cage. Now remove the CPU card.
The bottom shield must be removed. It is attacked with four plastic expansion pins. use a screwdriver to push the center pin out until it can be removed from the bottom. now remove the outer pins.
The bottom shield will lift off and expose the entire backplane area under the card cage.
Using Figure 7 as a guide, install the seven jumpers using a fine, solid conductor, insulated wire.

Recheck your work with particular attention to correct pins, solder bridges and shorts.
Reinstall the bottom shield and replace the plastic pins.

REASSEMBLY
Reinstall the CPU board, place the mother board in the RF cage, and re-insert the power supply connector (remember proper orientation). Reconnect the keyboard cable and speaker cable. Replace the screws in the RF cage and then the nine screws holding the bottom shield. Reinstall the bottom cover and replace the five phillips screws. The 800-PLUS 256K modification is now complete.

NOW FOR THE LAST TEST
Turn the 800 upright and reinstall all cards making sure the 256K memory board is in the middle slot. Replace the top cover and close the cartridge lid.
Again, power up the computer and watch for the blue screen to appear. As before, if it does not appear, turn the machine off and check your work.
If all is normal, congratulations, you now have an ATARI 800 with 48K of normal memory and 208K of extended memory.

ACCESSING ALL THAT RAM
The 256K is divided up into 16 sections (or "banks") of 16K each. At any given instant only one of the sixteen is visible to the computer at locations ($4000-$7FFF), however the other fifteen are waiting, out of sight, with all previous contents intact. To "SEE" any of the "16 BANKS", all that is needed is to POKE the number of the bank you want (from 0 to 15) into location $CFFF.

SUMMARY
Unlike other 256K mods which have popped up recently, this one works perfectly with two of the ATARIs most popular business programs, SYNFILE+ and SYNCALC. Upon booting an original copy of SYNFILE+, you will find it displays the message, "288K RAM PRESENT."
Probably the most effective use of this extra memory is as a RAMDISK. I currently have a program that will patch MYDOS 3.05 to access this extra RAM as drive 8, a "946-sector, double density RAMDISK".
The author of the patch, Ross Beers, has allowed me to put this in the Public Domain on the LAACE BBS for download under the name "MYDOS256".
Finally, if you have any questions or comments about this modification, leave a message on the LAACE BBS for me and I'll reply asap.

Enjoy
Robert Bobbio

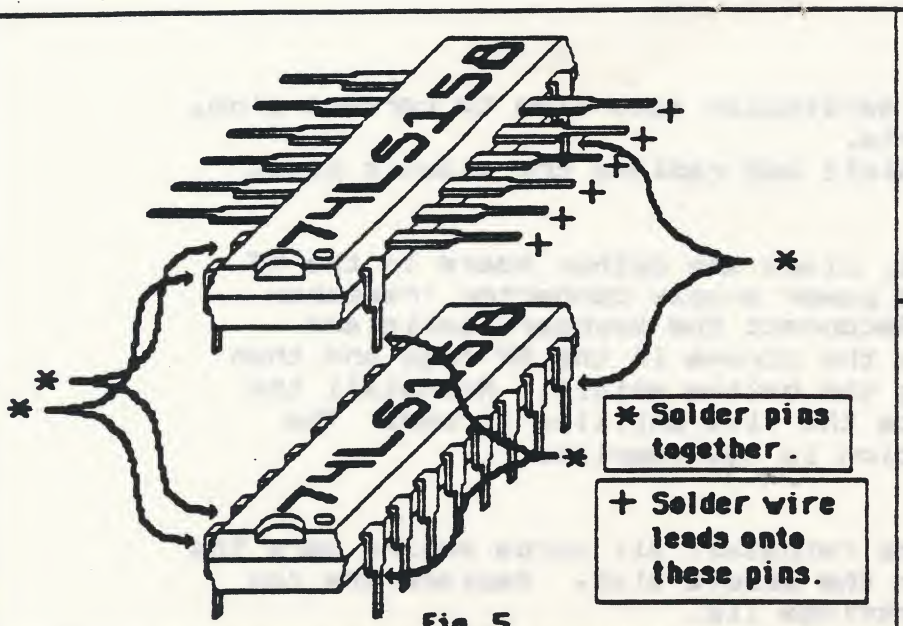
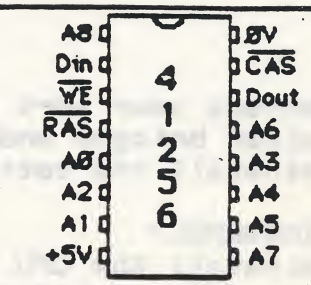


Fig. 5



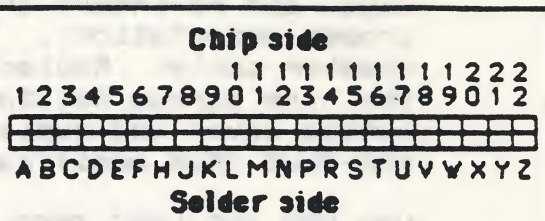


Fig.2 - Card edge connector Pin assignments

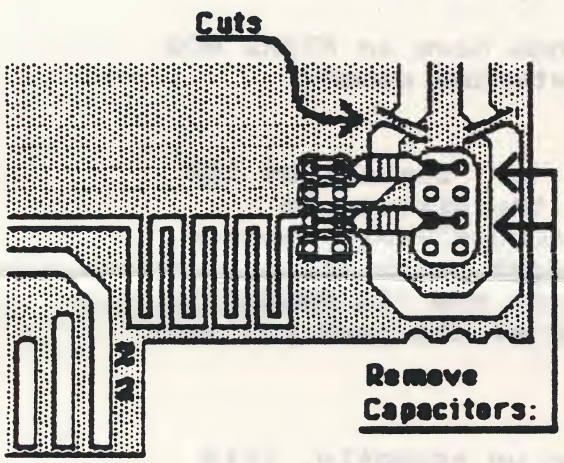


Fig. 4 - Lower right corner of the chip side of memory board.

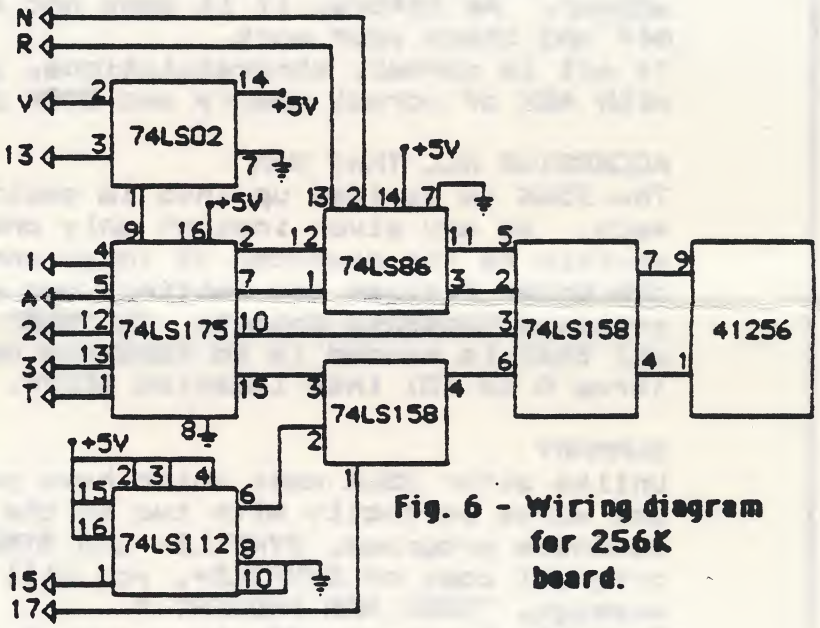


Fig. 6 - Wiring diagram for 256K board.

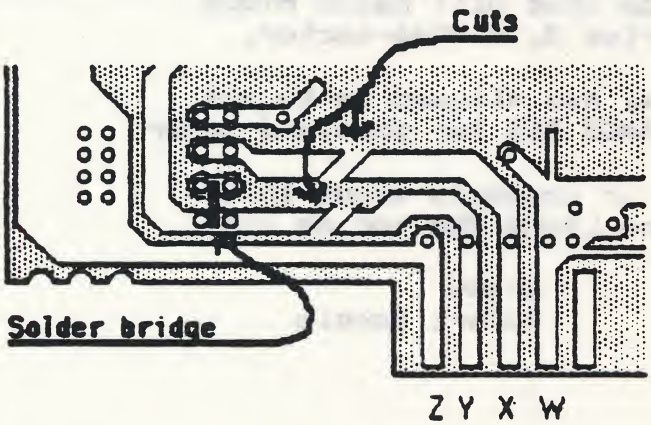


Fig. 3 - Lower left corner of the solder side of memory board.

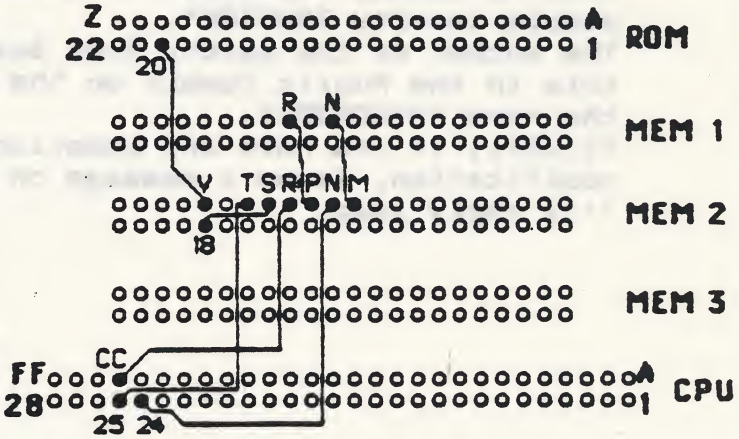
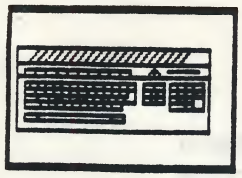


Fig.7 - Backplane jumpers



Some Tips on the ST

Volume I, Jan. 1986
by John Demar

Since last June, I've given my ST quite a work out. At the beginning, it seemed like I was demonstrating it more than I was using it! Packing it up for a users' group meeting, bringing it to a store that was too anxious to wait for their first shipment, showing it to all sorts of curious people dropping by at my home. Even the regional sales rep had never seen the 520ST before he looked at mine... Over the past few months, I've gathered many facts and learned a few tricks that I'd like to pass on. As always, this information is best communicated through Compuserve and the growing network of ST-specific bulletin boards. You're welcome to give a copy to a friend who isn't fortunate enough to own a modem (yet!). Hopefully, I'll compile another list like this in the future. Please forward to me any comments and tips of your own. Our BBS number is 315-457-7216 or drop a letter in the mail to QMI, PO Box 179, Liverpool, NY 13088. Enjoy!

1) Saving the GEM Desktop

I always see an ST booted at a store and can't believe how messy they keep their DeskTop. I shouldn't be too critical -- the top of my desk is pretty hard to find! The "Option" Menu on the GEM DeskTop has a choice called "Save DeskTop". It creates the file called "DESKTOP.INF" which remembers what your DeskTop looks like (icon and window positions, screen resolution, etc). The next time you turn on your computer, the DeskTop display will look just as you left it. For instance, I have my disk icons placed at the bottom left of the screen and the trash can at the bottom right. I resize and move my windows so that they are equality centered vertically next to each other (text viewing). Go to the Option Menu and Save the DeskTop. Next time I boot, everything looks familiar and comfortable to me!

2) Renaming the Icons

I've found it more appealing to have the disk icons named "Top Disk" and "Bottom Disk", to correspond to the physical position of my disk drives. Point to a disk icon and click the button to make it dark (selected). Go to the Options Menu and select "Install Disk Drive". Type in the new name in the drive name field and click on the Install button. Voila! Your icon is renamed. If you save the DeskTop, the name will be there permanently. You can rename the trash icon by loading the DESKTOP.INF file into a text editor and renaming it where it is shown in its special format. If you do this with ST-Writer, make sure the top and left margins are set to zero, then print to disk (do not use Save since ST-Writer uses a different format).

3) Installing an Application Document-Type

This sounds complicated but it's really a useful feature. For instance, you probably name all of your ST-Writer files with a file extension ".DOC". Normally, you would load ST-Writer then load the document file. Here's how to do it in one step! On the DeskTop, click once on the application program name (or icon) to make it black (selected). Go to the Option Menu and choose "Install Application". In the field called Document Type, enter the three characters for the file type associated with the application (DOC, for the case of ST-Writer). Then, save the DeskTop to make this a permanent choice. From now on, all you need to do is click twice on any document file (".DOC" on the name) and ST-Writer will load automatically and the document file will load into ST-Writer, waiting in the edit mode! Make sure ST-Writer is on the

same disk as your document files or this will not work.

4) The Infamous <ESC> Key

The Escape comes in handy for a couple of things. When you remove a disk from a drive and replace it with another, the DeskTop still shows the directory for the old disk. I spent the first two months closing the window and re-opening it to see the directory of the new disk. Not so! Simply press the <ESC> key and the directory will appear for the new disk! Also, the Escape key is used to erase text fields in GEM Dialog Windows. For instance, you're entering the date in the Control Panel -- just hit <ESC> and the old date will erase and the cursor will go to the beginning of the field.

5) The Case of the Dead Mouse

I've heard of missing mice and a sick mouse or two. But, there's no such thing as a dead mouse! The ST keyboard allows you to move the cursor around without using the little critter. Hold <Alternate> and the cursor arrow keys to move the pointer in steps and use the <Alternate> and <Shift> keys together with the cursor keys for fine movement. The <Alternate> key with the <Insert> key acts like the left mouse button and the <Alternate> key with the <Clrhome> key acts like the right mouse button. It makes a lot of sense once you think about it!

6) Printing the Screen

You'll need an "Epson compatible" printer and a healthy printer ribbon for this one. If you ever want to grab a graphic copy of your screen display, press <Alternate> and <Help> at the same time. Make sure your printer can handle it or the ST will go to sleep for a couple of minutes. Also, if the image will not fit on your printer, use the Printer Config Desk Accessory and choose 960 for the pixels/line. Save the DeskTop to make it permanent.

7) A Cheap Monitor Stand

Out of despair, I looked around for something to lift my monitor up a few inches. I grabbed a letter tray (one of those stackable, plastic in/out basket things) and flipped it upside down. The monitor sits nicely on it and the cables hide into the opening of the tray! Most stationary stores sell them for three to five dollars or so. I have three trays now for my drives and two monitors.

8) Upgrading to One Meg of RAM

Who would ever believe that we would be complaining about having ONLY 512K of RAM! With TOS in ROM (available for $25 any day now), the 520ST is more enjoyable than any other personal computer. But, One Meg gives you lots room for nice things like large desk accessories and a big RAM Disk or two. Now the bad news... If you are not extremely comfortable with electronics and soldering, DO NOT attempt the upgrade yourself! Although I have an electronics degree and ten years experience with soldering, only two out of the five I've upgraded so far have worked the first time. The others required careful debugging using an oscilloscope along with a knowledge of microprocessor systems. My suggestion is to wait for a plug-in board and pay the difference. If you can't wait, have someone install the RAM who has done it successfully before. By the way, I've been more successful soldering to the BACK of the PC board instead of directly on top of the old RAM chips. The RF shield on the back of the board acts as a heat-sink for the RAM if the cardboard is cut away and no wires touch the metal. Remember to bend back the leads 180 degrees to mirror the pinout of the chips!

9) Using Folders

When you find yourself staring at a screen full of files and looking all around for a certain file, you're ready for folders.

Folders are actually sub-directories to keep associated files together, just as you would keep related things together in a file cabinet. Select "New Folder..." from the File Menu on the DeskTop. Give it a general name that describes its intended purpose (you cannot rename a folder later on!). Just click twice on the folder and you will see what's inside of it. When copying files into a folder, make sure you have enough space on the disk and do not go according to the number of bytes shown at the top of the window; this refers only to the folder, not the total disk. Click the disk icon once and use the "Show Info" selection from the File Menu to check the free space on the disk.

10) Backing-Up your Protected Software

The best solution to this problem is not to purchase software that is protected! If you have a protected program and need a back-up copy, it is your right to protect yourself. First, ask the company to sell you a back-up copy, without a manual, at a reduced price. If they laugh at you, laugh at them by not purchasing any more of their products and by suggesting the same to your friends. Fortunately (and unfortunately), there are copier programs to copy just about anything on the ST. Please use these for your own personal back-ups only. And respect the rights of those publishers who are respecting your rights by NOT protecting their software. We're all looking forward to a long and prosperous life for the ST and a computer without software makes a great doorstop (commodoorstop?)!

11) Some Notes on The Operating System (TOS)

It's pretty frustrating when I hear people talk about the ST's operating system. Here's a few definitions and clarifications on what's inside of there. I'll start from the bottom up. The ST BIOS (Built-In Operating System) is a group of functions to handle the lowest-level tasks in the ST. This includes simple input and output to and from the devices and other functions specific to the hardware. These routines are used by advanced programmers when more control or speed is needed. Since the BIOS is mostly specific to the ST, use of these calls will make it harder to convert the program to another computer. GEMDOS is the medium-level set of functions that handles disk file management, general input and output, memory allocation and program loading. This set of routines is similar to CPM/68K but is NOT CP/M compatible (this has been one of the most common misunderstanings!). Although GEMDOS was written by Digital Research Inc, the makers of CP/M, GEMDOS is closely related to MSDOS with similar function numbers and parameters. Since GEMDOS separates the programmer from the hardware specifics, programs are more easily converted to other computers. Another low-level set of routines is called the "Line-A Graphics". These are very fast drawing functions used extensively by GEM and are also available directly to the programmer. The Line-A routines are responsible for just about everything you see on your ST screen. Use of these routines makes it difficult to move programs to other computers and it's very difficult (or impossible) to make them work nearly as fast on any other computer! GEM itself is actually not an operating system -- it's a library of routines available to the programmer that manages the graphics display and the user interaction with the program. GEM is divided into two major sets of functions: the VDI (Virtual Device Interface) which handles higher-level graphics, and the AES (Application Environment Services) which are high-level libraries of routines for the user/program interaction. VDI makes extensive use of the line-a graphics to control the screen display with over one hundred available functions! The

AES contains libraries of routines (totaling over a hundred, again!) that use VDI and GEMDOS. The programmer uses these libraries for a consistent environment between the program and the end user. GEM programs that do not make calls to the BIOS, are, in theory, completely portable to GEM on other computers, including the IBM PC. The GEM DeskTop is actually a GEM application that runs by default when you turn on your computer. Any or all of these routines, including the BIOS can be ignored by another operating system loaded into the ST. I can't wait to see what kinds of systems become available for the ST! I hear there's definite plans for OS9 and other multitasking OS's. If this was all too heavy to handle, the next topic should be more useful!

12) Types of Programs

The first day my ST arrived, I sat for three hours trying to make the cursor appear with 4XFORTH from the Dragon Group. Finally, I gave them a call and they talked me through it... install the program as a TOS application! There are four types of programs on the ST and here's a quick explanation of each: GEM APPLICATION. A GEM application is a program with a ".PRG" type at the end of the filename. This type of program uses the GEM interface or was written to enter and exit appropriately with the GEM DeskTop. GEM DESK ACCESSORY. A Desk Accessory is a program, usually smaller than a full application program, that loads into memory when you turn on the computer. They remain in memory and are convenient at anytime from a GEM application through the "Desk" Menu. These program, with a ".ACC" file type, are really multitasking programs running in infinite loops when the main application isn't busy. A desk accessory must be programmed as such and regular application will NOT work as an accessory. NON-GEM PROGRAMS. Other programs that do not make use of the GEM routines have a ".TOS" file type. They strictly use GEMDOS functions and supply their own interaction with the user. Usually, a TOS program requires a blinking cursor which is enabled automatically when the program is run. TTP PROGRAMS. A special type of TOS program has a ".TTP" file type. These programs require a list of arguments for input to the application. If you are familiar with CP/M or MSDOS, these programs are usually run by entering the name of the program as a command followed by the parameters. With the GEM DeskTop, these parameters are passed through a dialog window. A few "Command Processors" or "Shells" are available for the ST that give you a command-line environment similar to Unix, CP/M or MSDOS. TOS and Ttp programs may be used through those command programs.

13) Some Notes of the Hardware

I'm still impressed every time I look inside of an ST! I could go on forever talking about the details but I better save that for later. So here are a few comments on some hardware related things. The 520ST has a Memory Controller that can handle up to four megabytes of RAM without any additonal support chips. The Operating System looks for up to four meg of RAM and all programs may access it continually without banking or segmenting. With 32 1-Meg RAM chips and a lot of work you can have a 4-Meg ST! The ROM cartridge on the left side is strictly for read-only memory. You cannot add RAM or other support chips to that port. The DMA port is not a Hard Disk Port; it requires about $200 worth of circuitry to control a bare hard disk drive. However, it is relatively inexpensive to control SASI and SCSI devices and allows for up to eight compatible peripherals. Atari says that a $699 hard drive will be available soon. a couple of other companies are showing hard drives and hard controllers for the ST. The ST has four custom integrated circuts that are available only from Atari. Besides the ROMs, all of the remaining IC's are readily available "off the shelf." Everything in the ST is soldered in without sockets except

for the custom chips and ROMs (these are not guarenteed to stay socketed in later production runs). The floppy disk controller in the ST will control only two disk drives. But, it will control 5 1/4" drives with a format compatible with MSDOS and an IBM-PC. A simple cable from inside the SF343/SF314 drive can hook up to a 40 track or 80 track 5 1/4" drive. This isn't too useful really, but it is definitely faster to copy files direct from disk instead of transferring them through terminal programs between an ST and IBM-PC. However, the latter method is usually more convenient and less expensive. Another note: the ST cannot drive both the monochrome and color monitor at the same time

14) Programming on the ST

No matter which language you decide to program in, you won't get very far with a serious application without the Atari Developer's Kit. The ST is a sophisticated hardware and software system that requires the documentation and lots of effort to learn. I've used 4XForth extensively on the ST (I have serial number 3 of 4XForth) and recommend it to anyone. The H&D Forth from Mirage is not as professional as 4XForth and the price reflects that fact. If you just can't deal with Forth, there's many other choices. ST BASIC is very compatible and extensive. However, I do not recommend BASIC for any serious programming on the ST. If you want to learn a few things, you have nothing to lose -- BASIC is free! The same goes for LOGO. It is not a serious language for program development but it's a very nice, powerful language for kids to use. In fact, many grade schools teach LOGO instead of BASIC. "C" is a favorite language for software developers on any computer, large or small. The Atari Developers package comes with Alcyon C from Digital Research. Alcyon C is acceptable but has many slow, intermediate steps in the compile process. Another C, from Haba, hasn't received very good reviews because of it's incompleteness. Yet another C, from Megamax, looks very promising but it isn't available to the general public as yet. The preliminary copy, that I purchaced from Megamax, has some room for improvement but it is very fast and easy to use. I'm looking forward to the final version and I'm placing my bets on this one. More implementations of "C" are promised from other companies including Lattice C which is popular on many other computers. Pascal is finding its way onto the ST but I haven't looked at any of them yet. Modula 2, a language similar to Pascal, is available from TDI and seems to be fast and complete. I haven't looked it over completely but I know a couple of people that are enthusiastic about it. I've noticed that other languages are promised for the ST including Fortran, Basic compilers, a Basic in ROM cartridge, Cobol and a few more.

Well, that's all for now? I've intended to write these things down for quite a while and I hope it's useful to someone. Again, you are welcome to comment on any of my comments or offer your own notes for the next issue of "Some Tips on the ST".

ENDING NOTES

The Atari Explorer has a new editor. This is David Ahl, late of Creative Computing. The Explorer will also be going bimonthly soon.

If you have read this months Byte magazine then you know something of the blitter chip. This is a graphics co-processor which will enable faster scrolling and other graphic applications. Well, there will be no empty socket in the 1040ST for this chip as reported. There will be a retro-fit kit available at a latter date. According to Neil Harris, Atari is planning to come out with a new model which will be aimed toward graphic applications. Thanks to Dick Hiatt for this information.

"WRITE ME A LETTER"

The "Fearless Four" from SDACE (Mark Booth, Bruce Lawson, Darlah Hudson and Buck Bragunier) ventured forth to sunny downtown Burbank on that rainy Saturday, February 8th to attend a special meeting of ACENET. ACENET is a consortium of southern California ATARI users groups, originated by John Tarpinian of HACKS, to coordinate our efforts in getting and providing support to corporate ATARI and each other. This special meeting was to feature Jack Trameil and be an ATARI State of the Company exchange. Jack was not there; Sig Hartman, the software guru, and John Skruch, the 8-Bit boss, were.

Sig stated that ATARI was "in great shape" - although he admitted they were better in Europe than the U.S. - and that things were looking up. He emphasized that ATARI counted on its approximately 450 users groups for word of mouth advertising and feedback. There are three thrusts within ATARI: The electronic game machines, led by the new 7800 series, the 8-bit effort, featuring the XE series (He even called the 800XL an "old" machine!), and the 16-bit line with the 520ST in its many configurations and the "soon to be shipped" 1040ST. Sig stated that ATARI is actively searching for software developers to add to their existing roster of approximately 1200.

In hardware news, the development of the 32-bit graphics workstation and concurrent development of hi-res monitors (1280 x 960 pixels) led the effort, with a laser printer for the 1040ST on the drawing boards and the 20mb hard disk ($799) due out by April 1986.

Software news centered on the need for additional developers to add to the ranks of ST software and the announcement of ATARIPLANETARIUM, supposedly a SUPER sky show, due out in March for $25.00. This is for the 8-bit machines!

John convinced the audience that the 8-bit world is alive and well, with an 80 column hardware peripheral coming out which will have a parallel printer port available. He promised it to be released in the U.S. this summer, although no price was mentioned. ATARI is building a 3-1/2 disk drive for the 8-bit world, with a new "A-DOS". The DOS will be upwardly, but not downwardly compatible with 5-1/4 inch drives. Also, look for a mouse, a new printer ($219) which will be EPSON FX-80 compatible and STAR RAIDERS II shortly.

Several hours of exchange centered on ATARI's desire for support from the users groups to push their product. The eleven groups present also tried to convey to Sig that we needed support from ATARI in improved communications and, most important, a vast improvement in distribution efforts for both hardware and software. His response to our pleas was "Write Me A Letter". ÆIt is my personal opinion that he, for whatever reason, chose NOT to hear what we were telling him, in spite of his request for feedback. Maybe he listens to feedback that he wants to hear.Â On a positive note, he made a committment to each club that they could purchase, directly from ATARI for club use, a 1040ST color system for $900.00. ÆOn the other hand, ATARI made the same promise to let users group purchase a 520ST color system for club use for $375; they quickly reneged when we tried to take advantage of the offer for the SDCS Computer Show last November.Â

The Famous Computer Cafe was in attendance. Although this show is considerably bigger in L.A., they are looking to expand their presence in San Diego and other areas. Listen locally on KSDO (1130 AM) on Sunday evenings between 9 and 10 pm. Let's hear what you think.

The next meeting of ACENET will be in mid- April. It is a good forum to meet with other area ATARI users groups and exchange ideas. We may not always agree with what is said (as is the case with Sig Hartman and this author), but one does leave more informed than when he arrived. If you are interested in attending the next meeting, leave a message to me on SDACE BBS.

-Buck Bragunier

BASIC XE Review

by Dick Hiatt

I have been using Basic XE for about two months now, off and on and I am hooked on it. First off it let you use the extra memory in your XE with either an EXTEND command or using PEEK and POKEs. Besides the EXTEND command there are many usefull commands in addition to the regular Atari Basic instructions . The other big plus is the manual, it is very well organized. All the commands are grouped by tasks. Most of the commands have brief examples. My only complaint is that for knot heads like me there should be more examples and perhaps more complete tutorials, especially for the extended commands.

A few of the features that are not in ATARI Basic are that DOS commands can be called from basic, you can have string arrays and you do not have to dimension strings before using them. BASIC XE does it for you. You can use upper and lower case when writing your programs. TRACE and TRACEOF are handy commands to debug your program.

Basic XE comes with a disk which loads Basic extensions. With these extensions you can delete line numbers, renumber, get records, put records, sort!! and use procedure calls. All in all a very powerfull Basic.

One of the nice features is the EXTEND command. That command places your program in the extended memory and frees up the main memory where your basic program would reside. This command it a bit tricky. You have to be very carefull if you have machine language routines in a string. especially if you ADR("string"). I tried to EXTEND AMODEM and it wouldn't work, but most other programs would.

As I said earlier, PEEK and POKE can be used with the other memory banks, very usefull when you have a large program and need extra memory for temporary storage. Another useful instruction is SET. It gives you control over many system level functions, like disable the BREAK key etc. I should mention the FAST command that precompiles the program for faster execution.

For you graphic programmers there are instruction which make player/missile graphics easier to use.

There are many more instructions which are either mentioned in other reviews or in the ads. I haven't had time to use them all but I know they will be useful when the time comes.

On addition to all of the above BASIC XE can run all ATARI BASIC programs without any changes.

As far as I am conserned, if you program in BASIC on your XE, use BASIC XE! It's the only way to go.

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OUR NEXT MEETING,

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Social Room